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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------------|------------------------|
| 10/798,934 | 03/11/2004 | James R. Gallagher | AUS920040004US1 | 6936 |
| 35525 7590 08/27/2007 IBM CORP (YA) C/O YEE & ASSOCIATES PC P.O. BOX 802333 DALLAS, TX 75380 | | | EXAMINER NGUYEN, TANH Q | |
| | | | ART UNIT 2182 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

18

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|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/798,934 | Applicant(s) GALLAGHER ET AL. | |
| | Examiner Tanh Q. Nguyen | Art Unit 2182 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-9, 16-17, 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-13, 18, 19 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 14, 15 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>03/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I (claims 1-4, 6-7, 10-15, 18-19, 21) in the reply filed on June 6, 2007 is acknowledged. The traversal is on the ground(s) that the office action states that the species are independent or distinct because they are mutually exclusive, but provides no specific explanation as to why the species are mutually exclusive.

This is not found persuasive because the office action states the species are independent or distinct because Species II is directed to changing a level of aggregation, hence a utility that is separate from the utility of Species I, which is directed to how the buffers are aggregated.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 2-4, 7, 10-11 are objected to because of the following informalities:

"the steps" in line 1 of claim 2 should be replaced with "the step" - as there is only one step that follows.

"further comprising the steps:" in line 1 of claim 2 should be replaced with "wherein" - as the claim merely clarifies what "determining current characteristics of said system" includes. There is no further step.

"said characteristics" in line 4 of claim 2 should be replaced with "said current characteristics" for clarity.

"the steps" in line 1 of claim 3 should be replaced with "the step" - as there is only one step that follows.

"the steps" in line 1 of claim 4 should be replaced with "the step" - as there is only one step that follows.

"the steps" in line 1 of claim 7 should be replaced with "the step" - as there is only one step that follows.

"A method data processing system" in line 1 of claim 10 should be replaced with "A data processing system".

"said system including a CPU" in line 5 of claim 10 should be replaced with "a CPU" to avoid redundancy with "said system comprising" in line 2 of the claim.

"further comprising:" in line 1 of claim 11 should be replaced with "wherein" - as the claim merely clarifies what "determining current characteristics of said system" includes. There is no further step.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "determining current characteristics of said system including determining direct memory access (DMA) capabilities and processor capacity of said

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system, wherein said DMA capabilities and process capacity are said characteristics" in lines 2-4.

It is unclear whether applicant meant "processor capacity" or "process capacity". Furthermore, it appears that "wherein said DMA capabilities and process capacity are said characteristics" does not limit the claim any further.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 18-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 18 recites "A computer program product" comprising instructions, therefore a program per se - which is considered to be non-statutory. Furthermore, a program without execution by a computer would not result in any useful, tangible and concrete results - and therefore is also considered to be non-statutory.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 10-12, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US 5,870,628).

9. As per claim 1, Chen teaches a method [FIGs. 4-5; col. 4, line 52-col. 6, line 12] in a data processing system [FIG. 1] for dynamically selecting software buffers [entries of RAW CELL FIFO BUFFER 25, FIG. 2] for aggregation [into one of DMA FIFO BUFFERS 26a-26n, FIG. 2] in order to optimize system performance [col. 5, lines 18-20; col. 5, lines 32-43], said method comprising:

receiving data to be transferred to a device [receiving ATM cells from network to be transferred to the system memory - see FIGs. 1 and 2], said data being stored in a chain of software buffers [ATM cells being stored as a chain of entries in RAW CELL FIFO BUFFER 25];

determining current characteristics of said system [characteristics and status of DMA FIFO BUFFERS 26a-26n]; and

dynamically selecting ones of said software buffers to combine that will maximize performance of said system while said data is being transferred [the appropriate cell entries in RAW CELL FIFO BUFFER 25 are combined in the DMA FIFO BUFFERS 26a-26n for DMA transfer that is most optimal for receiving computer 100 (col. 5, lines 18-20; col. 5, lines 32-43)].

10. As per claim 2, Chen teaches the current characteristics including DMA capabilities and processor capacity [col. 5, lines 13-43; note that processor capacity is improved by the use of DMA transfer, and also by optimum bus utilization and memory bandwidth consumption].

11. As per claim 3, Chen teaches generating a new chain of buffers that includes an aggregation of said selected ones of said software buffers [each of DMA FIFO BUFFERS 26a-26n includes a chain of selected cells that are aggregated in each of DMA FIFO BUFFERS 26a-26n].
12. As per claims 10-12, the claims generally correspond to claims 1-3 and are rejected on the same bases.
13. As per claim 18, the claims generally corresponds to claim 1 and is rejected on the same basis.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

16. Claims 4, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. in view Buckland et al. (US 6,665,753).

Chen does not teach setting a threshold for each combination of I/O adapter, slot size, and system characteristics. Buckland teaches such limitation [col. 4, lines 26-37] to optimize performance of a computer system [200, FIG. 2]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to set a threshold taught by Buckland, in order to optimize the performance of the computer system. Note that the claimed setting the threshold step is just an additional step that is independent of all the steps of the parent claim, and can therefore be independently rejected.

17. Claims 1, 3-4, 10, 12-13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webb et al. (US 6,061,749) in view of Buckland et al. (US 6,665,753).

18. As per claim 1, Webb teaches a method [col. 41, lines 1-33] in a data processing system [FIG. 50] for dynamically selecting software buffers [entries 1077, 1078 of FIFO 1073, FIG. 2] for aggregation in order to optimize system performance [col. 41, lines 18-21], said method comprising:

receiving data to be transferred to a device [1069, FIG. 50], said data being stored in a chain of software buffers [entries in FIFO 1073, FIG. 50]; and

dynamically selecting ones of said software buffers to combine that will maximize

performance of said system while said data is being transferred [FIFO entries 1077 and 1078 are dynamically selected for normalization into output register 1076 to improve overall throughput; col. 41, lines 1-32].

Webb does not teach determining current characteristics of the system.

Buckland teaches such limitation [col. 4, lines 26-37] to optimize performance of a computer system [200, FIG. 2]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the current characteristics of the system, as is taught by Buckland, in order to optimize the performance of the system. Note that the claimed determining current characteristics of the system step is just an additional step that is independent of the other steps of the claim, and can therefore be independently rejected.

19. As per claim 3, Webb teaches generating a new chain of buffers that includes an aggregation of said selected ones of said software buffers [normalized chain of buffers including aggregation of selected ones of entries in FIFO 1073].

20. As per claim 4, Buckland teaches setting a threshold for each combination of I/O adapter, slot size, and system characteristics [col. 4, lines 26-37].

21. As per claims 10, 12-13, the claims generally correspond to claims 1,3-4 and are rejected on the same bases.

22. As per claim 18, the claims generally corresponds to claim 1 and is rejected on the same basis.

Allowable Subject Matter

23. Claims 6-7, 14-15, 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if rewritten to overcome the 101 rejections.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Q. Nguyen whose telephone number is 571-272-4154. The examiner can normally be reached on M-F 9:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

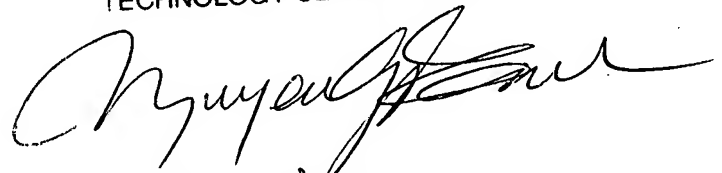
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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TANH Q NGUYEN
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100



August 20, 2007

TQN
August 20, 2007